Docket No. 1232-4423US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY APPLICATION AND FEE TRANSMITTAL (1.53(b))

ASSISTANT COMMISSIONER FOR PATENTS
BOX PATENT APPLICATION
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s) names and addresses:

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Narashino-shi, JAPAN

☐ Additional inventors are listed on a separate sheet

For: DATA COMMUNICATION APPARATUS AND METHOD

Enclosed Are:

24 page(s) of specification
1 page(s) of Abstract
7 page(s) of claims
5 sheets of ☒ Formal ☐ Informal drawings

6 page(s) of Declaration and Power of Attorney

☐ Unsigned
☐ Newly Executed
☒ Copy from prior application
☐ Deletion of inventors including Signed Statement under 37 C.F.R. §1.63(d)(2)

☒ **Incorporation by Reference**:

☒ The entire disclosure of the prior application, from which a copy of the combined Declaration and Power of Attorney is supplied herein, is considered as being part of the disclosure of the accompanying application and is incorporated herein by reference.

☐ Microfiche Computer Program (Appendix)

- ☐ page(s) of Sequence Listing
- ☐ computer readable disk containing Sequence Listing
- ☐ Statement under 37 C.F.R. §1.821(f) that computer and paper copies of the Sequence Listing are the same

☒ Assignment Papers (assignment cover sheet and assignment documents)

- ☐ A check in the amount of $40.00 for recording the Assignment
- ☐ Charge the Assignment Recordation Fee to Deposit Account No. 13-4503, Order No. . . . .
- ☒ Assignment Papers filed in the parent application Serial No. 09/025,184

☐ Certification of chain of title pursuant to 37 C.F.R. §3.73(b)

☒ Priority is claimed under 35 U.S.C. §119 for:
Application No(s). 9-035129 , filed 2/19/97, in Japan (country).

- ☒ Certified Copy of Priority Document(s) [ ]
  - ☐ filed herewith
  - ☒ filed in application Serial No. 09/025,184, filed 2/18/98.
- ☐ English translation document(s) [ ]
  - ☐ filed herewith
  - ☐ filed in application Serial No. _____, filed _____.

☐ Priority is claimed under 35 U.S.C. §119(e) for:
Provisional Application No. _____, filed _____.

☐ Priority is claimed under 35 U.S.C. §120 for:
Application No(s). _____, filed _____, in _____.

☐ Information Disclosure Statement

- ☐ Copy of [ ] cited references
- ☐ PTO Form-1449
- ☐ References cited in parent application Serial No. _____, filed _____.

☐ Preliminary Amendment

☒ Return receipt postcard (MPEP 503)

☒ This is a ☐ continuation ☒ divisional ☐ continuation-in-part of prior application serial no. 09/025,184, filed 2/18/98.

- ☒ Cancel in this application original claims 1-7 and 13, 14 of the parent application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ A Preliminary Amendment is enclosed. (Claims added by this Amendment have been properly numbered consecutively beginning with the number following the highest numbered original claim in the prior application.

☐ The status of the parent application is as follows:

☐ A Petition for Extension of Time and a Fee therefor has been or is being filed in the parent application to extend the term for action in the parent application until _____.

☐ A copy of the Petition for Extension of Time in the co-pending parent application is attached.

☒ No Petition for Extension of Time and Fee therefor are necessary in the co-pending parent application.

☐ Please abandon the parent application at a time while the parent application is pending or at a time when the petition for extension of time in that application is granted and while this application is pending has been granted a filing date, so as to make this application co-pending.

☐ Transfer the drawing(s) from the parent application to this application

☒ Amend the specification by inserting before the first line the sentence:
This is a continuation of co-pending application Serial No. 09/025,184, filed 2/18/98.

I. CALCULATION OF APPLICATION FEE				
	Number Filed	Number Extra	Rate	Basic Fee $690.00/345.00
Total Claims	17- 20 =	0	$18.00/$9.00	$ 0
Independent Claims	8- 3 =	5x	$78.00/$34.00	$ 390.00
☐ Multiple Dependent Claims		If marked, add fee of $260.00 ($130.00)		$
			TOTAL:	$ 1080.00

☐ A statement claiming small entity status is attached or has been filed in the above-identified parent application and its benefit under 37 C.F.R. §1.28(a) is hereby claimed. Reduced fees under 37 C.F.R. §1.9 (f) paid herewith $_____.

☐ A check in the amount of $ _____ in payment of the application filing fees is attached.

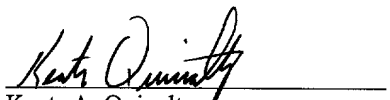
☒ Charge fee to Deposit Account No. 13-4503 Order No. 1232-4423US1. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

☒ The Assistant Commissioner is hereby authorized to charge any additional fees which may be required for filing this application pursuant to 37 CFR §1.16, including all extension of time fees pursuant to 37 C.F.R. § 1.17 for maintaining copendency with the parent application, or credit any overpayment to Deposit Account No. 13-4503 Order No. 1232-4423US1. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,

MORGAN & FINNEGAN, L.L.P.

Dated: June 7, 2000

By: 

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Data Communication Apparatus and Method

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to data communication apparatus and method for effectively communicating image data.

Related Background Art

Conventionally, in image communication to transmit and receive image information between terminals, especially, when it aims to transmit the image information to a specified individual, a facsimile apparatus for transmitting and receiving the image information based on a dedicated protocol by using mainly a public line, a method for adding an image file to an electronic mail transmitted between computer terminals connected to a network, or the like has been utilized.

Further, although it does not aim to transmit the image information to the specified individual, a WWW (World Wide Web) system utilizing a computer communication network becomes noticeable since an internet has been popularized. Like an internet application such as the electronic mail or the like, such the WWW system is a client/server system based on a communication protocol called a TCP/IP (Transmission Control Protocol/Internet Protocol). Further, such the

WWW system has been developed as an information retrieval/provision system which can be realized by communicating not only the image information but also data such as text data, voice data, animation data and the like handled in a computer, between a client application having a GUI (Graphical User Interface) called a WWW browser and a WWW server application.

However, in case of utilizing the image communication performed by the above conventional facsimile apparatus, a reception side can not confirm or know what kind of image was transmitted until the transmitted image is actually printed. For this reason, there has been a problem that, even if the transmitted image is unnecessary information for the reception side, an operator at the reception side can not previously confirm contents of such the information to cancel unnecessary reception. Further, the facsimile apparatus tends to be utilized in common by plural operators, there is a premise that the image is transmitted between the two facsimile apparatuses, and the image is transmitted based on one-sided intention of the operator at the transmitter-side facsimile apparatus. Therefore, there have been problems that it is not assured that the transmitted image certainly reaches the operator (individual) at an intended destination, and also there is some fear that contents of the transmitted image are seen by a person other

than the operator at the destination. Furthermore, when the operator at the transmission side aims to cause the operator at the destination to confirm necessity or unnecessity of the transmitted image, there has been inconvenience that the operator at the transmitter side must utilize other means, e.g., a telephone or the like, for such confirmation.

On the other hand, in such the conventional method as the image file is added to the electronic mail transmitted between the computer terminals connected to the network, since the electronic mail essentially intended for the individual is utilized, it is possible to solve the above-described problem by securing certainty that the image is transmitted to the operator at the destination. However, like the case where the facsimile apparatus is used, if the communication is not completed, the operator on the reception side can not confirm the received image. Therefore, there has been a problem that, even if the transmitted information is unnecessary for the reception side, the operator on the reception side can not previously confirm it and thus can not previously avoid receiving it. Further, since the electronic mail essentially aims to transmit and receive text data, if such the high-resolution and high-quality image file as used in the printing is added to the electronic mail, the data of which amount is significantly large must be

transmitted, thereby seriously loading an electronic mail server. Furthermore, in order to display such the image file on a display device of the reception terminal, there has been a problem that a display application software is necessary, and a large-capacity memory is also necessary, thereby seriously loading a CPU.

SUMMARY OF THE INVENTION

An object of the present invention is to provide data communication apparatus and method which solve or eliminate the above-described conventional problems.

An another object of the present invention is to provide data communication apparatus and method which can transmit image information to a destination without increasing a load to a mail server.

A still another object of the present invention is to provide image communication apparatus and method which can transmit image data on the basis of an instruction from a reception side.

A still another object of the present invention is to provide image communication apparatus and method which can switch a communication method according to communication contents.

The above and other objects, features, and advantages of the present invention will be apparent from the following detailed description and the

appended claims in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing schematic structure of an image communication apparatus according to an embodiment of the present invention;

Fig. 2 is a view showing structure of an image communication system according to the embodiment of the present invention;

Fig. 3 is a flow chart showing a process for transmitting an electronic mail by an image communication apparatus a;

Fig. 4 is a flow chart showing a process performed on the electronic mail received by a terminal 24 at a transmission destination; and

Fig. 5 is a flow chart showing a process as to handling of image data by the image communication apparatus.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Hereinafter, an embodiment of the present invention will be explained in detail with reference to the accompanying drawings.

Fig. 1 is a block diagram showing structure of an image communication apparatus according to the present embodiment.

In Fig. 1, reference numeral 11 denotes a CPU (central processing unit) which controls each unit in the apparatus based on programs stored in a ROM (read-only memory). Reference numeral 12 denotes a display unit which performs various displaying. For example, the display unit 12 displays a state of the apparatus, a screen for urging an operator to perform various operations, and the like. Reference numeral 13 denotes a console unit by which the operator inputs instructions according to the displaying on the display unit 12. The console unit 13 may comprise any input device such as a key input button, a pointing device (e.g., mouse), a touch panel or the like. Reference numeral 14 denotes a storage unit which stores data representing an input image or the like as a file. Reference numeral 15 denotes a communication control unit which controls connection of the apparatus to an external network.

An image input unit 18 and an image output unit 19 are connected to an image input/output control unit 17 and controlled according to instructions from the CPU 11. An image conversion unit 16 converts image quality such as resolution or the like.

Fig. 2 is a view showing system structure of an image communication system to which the image communication apparatus according to the present embodiment is connected.

In Fig. 2, reference numerals 21 and 22 respectively denote the image communication apparatuses shown in Fig. 1. To simplify the explanation, it is assumed that the apparatus 21 is handled as an image communication apparatus a to be used for transmitting the data and the apparatus 22 is handled as an image communication apparatus b to be used for outputting a received image.

Each of the image communication apparatuses 21 and 22 has an image input/output function, a network communication function based on TCP/IP (Transmission Control Protocol/Internet Protocol) connection, a WWW (World Wide Web) server function, and an electronic mail transmission/reception function. Reference numeral 23 denotes a terminal which has been registered as a reply destination used when the image transmission is performed by the image communication apparatus a, and reference numeral 24 is a terminal which has been registered as an image transmission destination to which the image transmission is performed from the image communication apparatus a. These terminals are computer terminals (including CPU, memory, display unit and the like) which are connected to a network 26. Further, reference numeral 25 denotes a mail server which provides electronic mail services to the terminals respectively connected to the network 26. The apparatuses 21 and 22 and the terminals 23 and 24

are all connected to others by means of the network 26. In this network 26, if each apparatus or terminal is connected based on the TCP/IP, they may be connected to others through any line and/or any protocol conversion on the way.

Subsequently, the operation of the image communication apparatus of such the structure as described above in the present embodiment will be explained in detail with reference to flow charts shown in Figs. 3 to 5. These flow charts correspond to the control flows which are performed by the CPU 11 on the basis of program data stored in the memory of the apparatus.

Fig. 3 is the flow chart showing the operation that an operator of the image communication apparatus a performs the transmission operation and thus an electronic mail is transmitted to a transmission destination.

In Fig. 3, in a step S101, it is initially recognized that an original to be transmitted to the image input unit 18 has been set by the operator. Then, in a step S102, it is further recognized the transmission destination and an instruction reply destination which have been set by the operator from the console unit 13 according to guidance displayed on the display unit 12. At this time, it is possible to add previously prepared fixed-form text and/or comment

by operator's input operation or preliminary setting. After confirming the input setting, the flow advances to a step S103.

In the step S103, it waits for key inputting to start the transmission. When it is instructed by the operator from the console unit 13 to start the transmission, the flow advances to a step S104. In the step S104, the image on the original to be transmitted which has been set from the image input unit 18 connected to the image input/output control unit 17 is read with a first image quality, the obtained image data is stored as an image file in the storage unit 14, and then the flow advances to a step S105. In the step S105, the setting is changed to store the image file based on a second image quality of which resolution and color reproducibility are different from those of the first image quality. According to the changed setting, in a step S106, it is instructed to store the image file based on the second image quality. In this case, the original to be transmitted may be again read from the image input unit 18 to obtain the image data of the second image quality, or the image file of the second image quality may be formed by converting the data of the image file based on the first image quality with the image conversion unit 16. In any case, the image files based on the two kinds of image qualities are formed from the identical image. The image files of

the different image qualities formed and stored in such the manner as above are utilized as a display image (coarse image of which data amount is small) and a print image (high-quality image). The display image is displayed on a terminal on a receiver side and used to confirm the received image, and the print image is transferred as print data after the receiver side confirmed such the display image. It is possible to prepare the plural display images and the plural print images to enable providing them according to display capability and print capability of the terminal on the receiver side or the image communication apparatus used for the image outputting. Further, the display image and the print image can be appropriately converted by the image conversion unit 16. By such the processes, when the image files of the respective image qualities are correlated with the information set in the step S102 and then stored into the storage unit 14, the flow advances to a step S107. In the step S107, locations of the display image files and the print image files formed and stored till that time are described in an HTML (HyperText Markup Language) and then stored in the storage unit 14.

The locations of such the HTML file and the display data are described in a URL (Uniform Resource Locater) which integratively describes information resources on an internet. A general format of the URL

to be utilized in a WWW system is shown as "resource_type://host.domain/path".

In this case, the format "resource_type" shows the used protocol or services, and designates an http (hypertext transfer protocol) in the image communication apparatus of the present embodiment. In other cases, although such a protocol as "gopher", "ftp", "nntp" or the like may be designated, the concrete explanation thereof is omitted. Further, the format "host.domain" shows an address of the server on the internet to be accessed, and is designated in an IP address format or a domain address format. In the image communication apparatus of the present embodiment, the IP address of the WWW server is designated. Furthermore, the format "path" shows a position of the file in the server. For example, in the image communication apparatus of the present embodiment, the location of the HTML file is described as "http://Server_ip_address/□□□/xxx.html". Further, the location of the display data for confirming the stored transmission image is described as "<IMG SRC = "http://Server_ip_address/□□□/○○○.ΔΔΔ">" in an HTML tag system.

In this case, the extension "ΔΔΔ" generally uses a compression image file format such as GIF, JPG or the like. Such the extension is interpreted by using a WWW browser being the client application in the WWW system.

When demanding the image file such as "ooo.ΔΔΔ" from a WWW server of the image communication apparatus, the WWW browser can display such the image file.

In a step S108, the transmission text (i.e., text to be transmitted) including the transmission destination, the instruction reply destination, the fixed-form text, the comment input and the like set in the step S102 is formed based on a known general-purpose electronic mail format. Further, the location of the HTML file formed and stored in the step S107 is added to the transmission text of the electronic mail. In a step S109, the transmission text of the electronic mail formed in such the manner as above is transmitted to the destination designated based on the transmission function of the electronic mail included in the image transmission apparatus a, as the electronic mail. Then, the transmitted electronic mail is sent to the transmission terminal 24 through the mail server 25.

Subsequently, with reference to Fig. 4, it will be explained in detail the operation that the receiver at the transmission destination receives the electronic mail, confirms the display image and provides various instructions to the image communication apparatus a at the transmission source. This flow chart corresponds to the control flow which is performed by the CPU on the basis of a program installed in the memory of the terminal 24 at the transmission destination.

In Fig. 4, initially in a step S111, the receiver who received the electronic mail causes the display unit to display the text contents of the received electronic mail and confirms the displayed contents, by using an electronic mail client application. Such the contents of the electronic mail include information representing that this electronic mail was sent by such special image transmission service as described in the present embodiment, a message to urge the operator to access the added URL by using the WWW browser, information concerning the transmitter, a comment from the transmitter and the like, but the contents described in the electronic mail are not limited thereto. Such the contents can be implicitly managed depending on circumstance.

In a step S112, it is judged whether or not the receiver of the electronic mail instructs (by clicking the URL portion described in the HTML text with use of the pointing device or the like) to confirm the image on the basis of the described contents. If there is the receiver's instruction, the flow advances to a step S113. In this case, if the electronic mail client application having a function to initiate the WWW browser from the URL described in the text of the electronic mail is utilized, it is possible to immediately confirm the image. However, even if the electronic mail client application not having such the

function is utilized, it is possible to confirm the image by initiating the WWW browser independently.

In the step S113, the WWW browser demands, from the image communication apparatus a, the HTML file which was formed and stored in the image communication apparatus a in the step S107 and is represented by the above URL. Since the image communication apparatus a has a WWW server function, the apparatus a supplies responsive to the demand from the WWW browser the designated HTML file to such the WWW browser. Further, the WWW browser analyzes the supplied HTML file. Then, according to the URL in which the display image described in the text and being a source object to be displayed has been described, the WWW browser again demands to display such the display image.

In a step S114, since the display image demanded by the WWW browser is supplied, the WWW browser causes the display unit of the terminal 24 to display the supplied display image. As a.result, the receiver of the electronic mail can confirm, as a visible image, outline of the image transmitted from the image communication apparatus a on the display unit of the transmission destination terminal 24 logged in by the user at the destination.

After the confirmation of the display image by the receiver of the electronic mail, the flow further advances to a step S115. In an image communication

system according to the present embodiment, since the image is displayed on the transmission destination terminal 24, the operator can instruct the apparatus to print out the high-quality print image simultaneously with the confirmation of the image. In the step S115, the displaying to instruct whether or not the print image is to be printed out is performed on the same screen as that for the display image, and the instructed contents responsive thereto are transmitted to the image communication apparatus a.

The function included in the WWW browser can be utilized in such an instruction and transmission method. That is, the WWW system includes a CGI (Common Gateway Interface) for transferring the input from the client (i.e., WWW browser) to the server to process such the input based on an external program. For example, in a case where an object (text, bit map data or the like) for instructing the printout of the print image is buried in the HTML text displayed on the WWW browser and it is set that the previously prepared instruction contents are transferred to the server if the object is selected, it is possible that the server which received the transferred instruction analyzes the instruction contents and initiates the program to transfer and print the print data. Further, by utilizing the CGI, it becomes possible to transfer not only the previously prepared instruction contents but

also the data inputted by the operator. Therefore, by utilizing the data inputted by the operator, it becomes possible to instruct the system to transfer and print out the print image to not only the specific image communication apparatus but also the arbitrary image communication apparatus based on such the input data. In any case, the above instruction and transmission method is not limited to the method which utilizes the above CGI. That is, any instruction and transmission method may be used, if such the method is based on the application executable between the server (i.e., the image communication apparatus a) and the client (i.e., the terminal displaying the display image). If the printout of the print image is instructed in the step S115, the flow advances to a step S116 to transfer the instruction contents to the image communication apparatus a in the above-described instruction and transmission method.

If the operator does not instruct the apparatus to print out the print image in the step S115, the flow advances to a step S117. In the step S117, it is selected by the operator whether the image data of which printout is not instructed is not to be printed out but to be stored as the file after the print image was transferred, or the image data is to be abandoned or deleted. If it is selected to transfer and store the print image in the step S117, the flow advances to

a step S118. On the other hand, if it is selected to abandon the print image, the flow advances to a step S119. In the steps S118 and S119, like the above-described print instruction, the instruction contents are transmitted to the image communication apparatus a.

Subsequently, with reference to the flow chart shown in Fig. 5, it will be explained in detail the operation that the image communication apparatus a receives the instruction contents from the receiver and analyzes the received contents, and then the process terminates.

In Fig. 5, initially in a step S121, the received instruction contents (either one of instructions in the steps S116, S118 and S119) are stored in the storage unit 14. After then, the flow advances to a step S122 to specify the setting on the transmission image in the step S102 performed at the image transmission time on the basis of the received instruction contents, and transfer such the instruction contents to the reply destination terminal 23 being the instruction reply destination on the basis of the instruction reply destination information. In this case, the transferring of the instruction contents to the instruction reply destination is realized by transmitting the electronic mail. The instruction reply destination which received the instruction contents through the electronic mail can confirm

transmission destination's action (i.e., abandonment, storage, print) on the image transmitted from the image communication apparatus a on the basis of the displaying on the display unit of the terminal. For this reason, it becomes possible to confirm whether or not the transmitted image was confirmed by the transmission destination. Further, it becomes possible to confirm the instruction on the transmitted image sent from the partner (i.e., transmission destination). After transferring the instruction contents to the instruction reply destination, the flow advances to a step S123.

In the step S123, the received instruction contents are analyzed. If the contents instruct to abandon the image data, the flow advances to a step S124 to delete the image file stored in the storage unit 14, and then the process terminates. On the other hand, if the contents instruct to transfer and print the image data or transfer and store the image data, the flow advances to a step S125. In the step S125, the print image is transferred to the previously designated image communication apparatus or to the image communication apparatus based on the data inputted by the operator of the reply destination terminal 24. In this case, the data transferring from the image communication apparatus a to the image communication apparatus b and the data storing as the

file are performed without using the mail server 25. When such the data transferring and the file storing terminate, the flow advances to a step S126. In the step S126, based on the instruction from the image communication apparatus a 21, the image communication apparatus b 22 judges whether or not the print image transferred and stored as the file is to be printed. If not printed, the process terminates as it is. On the other hand, if printed, the flow advances to a step S127, the print image is transferred from the storage unit 14 to the image input/output control unit 17 and then printed out by the image output unit 19. After then, the process terminates.

It should be noted that all the operations shown in the flow charts of Figs. 3 to 5 are confirmed as a series of communication on the identical image by checking IDs.

As explained above, according to the present embodiment, by utilizing the WWW server function and the transmission/reception function of the electronic mail, the image files of plural image qualities are stored, the file for describing by the HTML text the location of the file suitable to display the image outline is generated from the stored image files, and the electronic mail in which the location of the HTML file was added to transmission guide information concerning the transfer image is transmitted to the

electronic mail address at the designated destination. Therefore, the transmitter who transmits the image information from the image communication apparatus a can certainly transmit the information to the specific individual destination, and the receiver who received the electronic mail from the image communication apparatus a can display and confirm the outline of the transmitted display image on the computer terminal, e.g., the terminal 24, which received the electronic mail, by utilizing a WWW server and client system through the network.

Further, the instruction to the image file based on the operation by the receiver who received the electronic mail is received by a communication means, the image file of desired image quality is selected from among the stored image files according to the received instruction and is transferred to the designated image communication apparatus b, and then the image is outputted based on the transferred image file. Therefore, the image data is directly transferred between the image communication apparatuses on the basis of the judgment by the receiver who confirmed the image, whereby the image reproduced by the high-quality print image data can be transmitted without adding the large-capacity file data probably loading the electronic mail system and the reception terminal.

Furthermore, on the basis of the operation by the operator who received the electronic mail, the designated image communication apparatus b is instructed to output the image file of desired image quality the moment that this file is transferred to this apparatus, to store this image file without the outputting, or to abandon the stored image file. Therefore, it is possible to avoid the transferring of unnecessary information according to circumstances, and also it is possible to postpone the printing output according to secretion of information.

Furthermore, the instruction contents from the receiver of the electronic mail are stored, and the stored instruction contents are transmitted by means of the electronic mail to the destination previously designated by the operator on the transmission side, whereby the transmitted image can certainly reach the destination individual. Therefore, such the transmitted image can be utilized, when the terminal, e.g., the terminal 23, at the destination designated by the operator on the transmission side confirms that the image was confirmed by the operator himself on the reception side, and that the image was transferred and printed or the image was judged to be unnecessary and thus data abandonment was instructed.

The present invention may be applied to a system constituted by plural apparatuses (e.g., host computer,

interface unit, reader, printer and the like) or to a system constituted by a single apparatus (e.g., copy machine or facsimile machine).

The invention employed by a method wherein program codes of a software to realize the functions of the above-described embodiment are supplied to a computer in an apparatus or a system connected to various devices so as to make the devices operative in order to realize the functions of the above-described embodiment and the various devices are operated in accordance with the programs stored in the computer (CPU or MPU) of the system or apparatus is also included in the scope of the present invention.

In such the case, the program codes themselves of the software realize the functions of the above-described embodiment and the program codes themselves and means for supplying the program codes to the computer, e.g., a storage medium in which the program codes have been stored, construct the present invention.

As such the storage medium to store the program codes, for example, a floppy disk, a hard disk, an optical disk, a magneto-optical disk, a CD-ROM, a magnetic tape, a nonvolatile memory card, a ROM or the like can be used.

Also, in not only a case where the functions of the above-described embodiment are realized by

executing the supplied program codes by the computer but also a case where the functions of the above-described embodiment are realized in cooperation with an OS (operating system) by which the program codes operate in the computer or another application software or the like, such the program codes are of course included in the scope of the present invention.

Further, of course, the present invention also includes a case where the supplied program codes are stored in a memory provided for a function expansion board of a computer or a function expansion unit connected to a computer and, after that, a CPU or the like provided for the function expansion board or the function expansion unit executes a part or all of the actual processes based on the instructions of the program codes, and the functions of the above-described embodiment are realized by such the processes.

As explained above, according to the present embodiment, since based on the contents of the electronic mail the image data is transmitted by using the means other than the electronic mail, the image data can be easily and certainly transmitted to the receiver without loading the mail server or the like.

The present invention has been described in connection with the above preferred embodiment. However, the present invention is not limited only to the above-described embodiment, but various

modifications are possible without departing from the scope of the appended claims.

WHAT IS CLAIMED IS:

1. A data communication apparatus comprising:

input means for inputting image data;

storage means for storing the image data inputted by said input means;

mail transmission means for transmitting predetermined-format data concerning the image data inputted by said input means, as an electronic mail;

recognition means for recognizing an instruction from a transmission destination to which the electronic mail was transmitted by said mail transmission means; and

transmission means for transmitting the image data stored in said storage means, in a method other than the electronic mail on the basis of contents of the instruction recognized by said recognition means.

2. An apparatus according to Claim 1, wherein said storage means stores the image data inputted by said input means, as at least two image data respectively of different image quality, and

said transmission means transmits at least the image data of higher image quality in the image data stored in said storage means, without a mail server.

3. An apparatus according to Claim 1, wherein information representing presence of rough confirmation

image data stored in said storage means is included in the data transmitted by said mail transmission means.

4. An apparatus according to Claim 2, wherein said input means inputs the image data of different image quality by repeatedly reading an image on an identical original.

5. An apparatus according to Claim 2, further comprising conversion means for converting the image quality of the image data inputted by said input means, and

wherein the image data converted by said conversion means is inputted into said storage means.

6. An apparatus according to Claim 1, further comprising deletion means for deleting the image data stored in said storage means, on the basis of the contents of the instruction recognized by said recognition means.

7. An apparatus according to Claim 1, wherein said mail transmission means further transmits the contents of the instruction recognized by said recognition means, to a predetermined destination by using the electronic mail.

8. A data communication apparatus comprising:

first transmission means for transmitting data representing existence of additional information to a transmission destination;

reception means for receiving a reply from the transmission destination for the data transmitted by said first transmission means; and

second transmission means for transmitting the additional information on the basis of the reply received by said reception means.

9. An apparatus according to Claim 8, wherein said second transmission means transmits the additional information in a manner different from that of said first transmission means.

10. An apparatus according to Claim 8, wherein said second transmission means transmits the additional information to a terminal different from a terminal to which the data was transmitted by said first transmission means.

11. An apparatus according to Claim 8, wherein a link to a location of the additional information is set in the data transmitted by said first transmission means.

12. An apparatus according to Claim 8, wherein a processed content based on the reply received by said reception means is further transmitted to the transmission destination.

13. A data communication method comprising:

an input step of inputting image data;

a storage step of storing the image data inputted in said input step, into a memory;

a mail transmission step of transmitting predetermined-format data concerning the image data inputted in said input step, as an electronic mail;

a recognition step of recognizing an instruction from a transmission destination to which the electronic mail was transmitted in said mail transmission step; and

a transmission step of transmitting the image data stored into the memory in said storage step, in a method other than the electronic mail on the basis of contents of the instruction recognized in said recognition step.

14. A computer readable program stored in a storage medium, comprising:

an input step of inputting image data;

a storage step of storing the image data inputted in said input step, into a memory;

a first transmission step of causing predetermined-format data concerning the image data inputted in said input step to be transmitted as an electronic mail;

a recognition step of recognizing an instruction from a transmission destination to which the electronic mail was transmitted in said first transmission step; and

a second transmission step of causing the image data stored into the memory in said storage step to be transmitted in a method other than the electronic mail on the basis of contents of the instruction recognized in said recognition step.

15. A data communication method comprising:

a first transmission step of transmitting data representing existence of additional information to a transmission destination;

a reception step of receiving a reply from the transmission destination for the data transmitted in said first transmission step; and

a second transmission step of transmitting the additional information on the basis of the reply received in said reception step.

16. A computer readable program stored in a storage medium, comprising:

a first transmission step of causing data representing existence of additional information to be transmitted to a transmission destination;

a reception step of receiving a reply from the transmission destination for the data transmitted in said first transmission step; and

a second transmission step of causing the additional information to be transmitted basis on the reply received in said reception step.

17. A data communication method comprising:

a recognition step of recognizing a received electronic mail;

a display step of displaying an image for display on the basis of a content recognized in said recognition step; and

an instruction step of instructing a transmission source of the electronic mail recognized in said recognition step, to transmit image data in a method other than the electronic mail so as to process the image displayed in said display step.

18. A method according to Claim 17, wherein in said instruction step it is instructed to print the image.

19. A method according to Claim 17, wherein in

said instruction step it is instructed to store the image data.

20. A computer readable program stored in a storage medium, comprising:

a recognition step of causing a received electronic mail to be recognized;

a display step of displaying an image for display on the basis of a content recognized in said recognition step; and

an instruction step of instructing a transmission source of the electronic mail recognized in said recognition step, to transmit image data in a method other than the electronic mail so as to process the image displayed in said display step.

ABSTRACT OF THE DISCLOSURE

An object of the invention is to reduce a load to a mail server by transmitting image data based on contents of an electronic mail, in a method other than the electronic mail. In order to achieve the object, there is provided a data communication apparatus comprising an input means for inputting the image data, a storage means for storing the inputted image data, a mail transmission means for transmitting predetermined-format data concerning the inputted image data, as the electronic mail, a recognition means for recognizing an instruction from a transmission destination to which the electronic mail was transmitted, and a transmission means for transmitting the stored image data, in the method other than the electronic mail on the basis of the contents of the instruction recognized by the recognition means.

FIG. 1

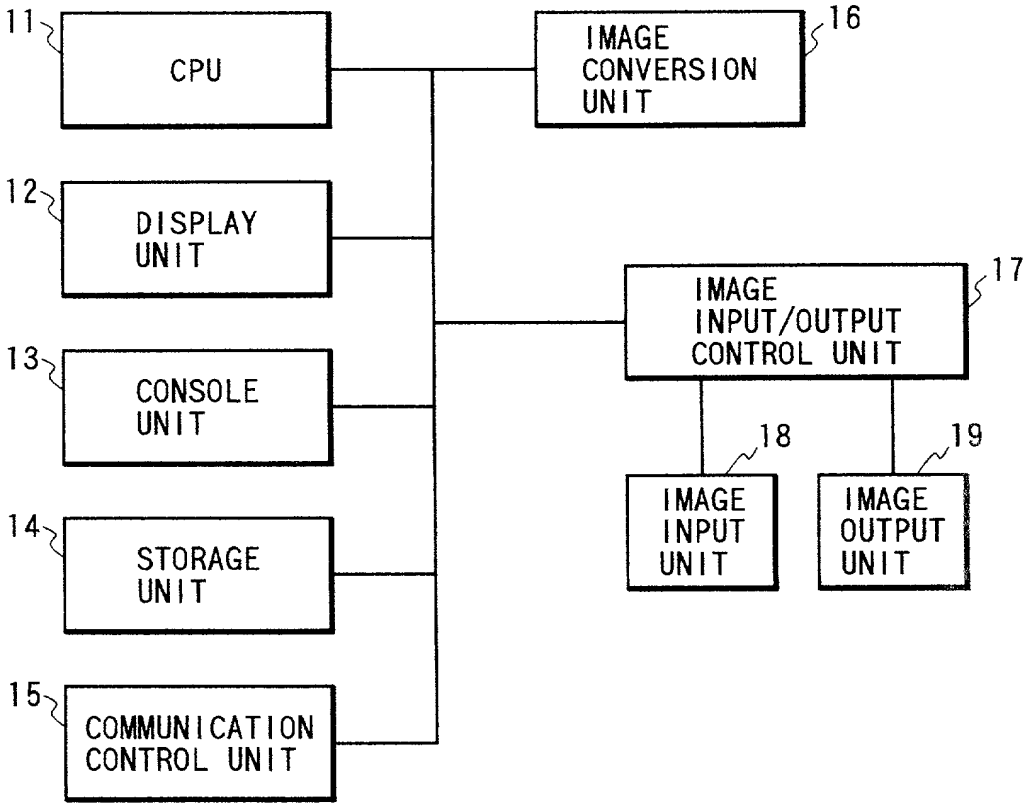

11
CPU
16
IMAGE CONVERSION UNIT
12
DISPLAY UNIT
17
IMAGE INPUT/OUTPUT CONTROL UNIT
13
CONSOLE UNIT
18
19
IMAGE INPUT UNIT
IMAGE OUTPUT UNIT
14
STORAGE UNIT
15
COMMUNICATION CONTROL UNIT

FIG. 2

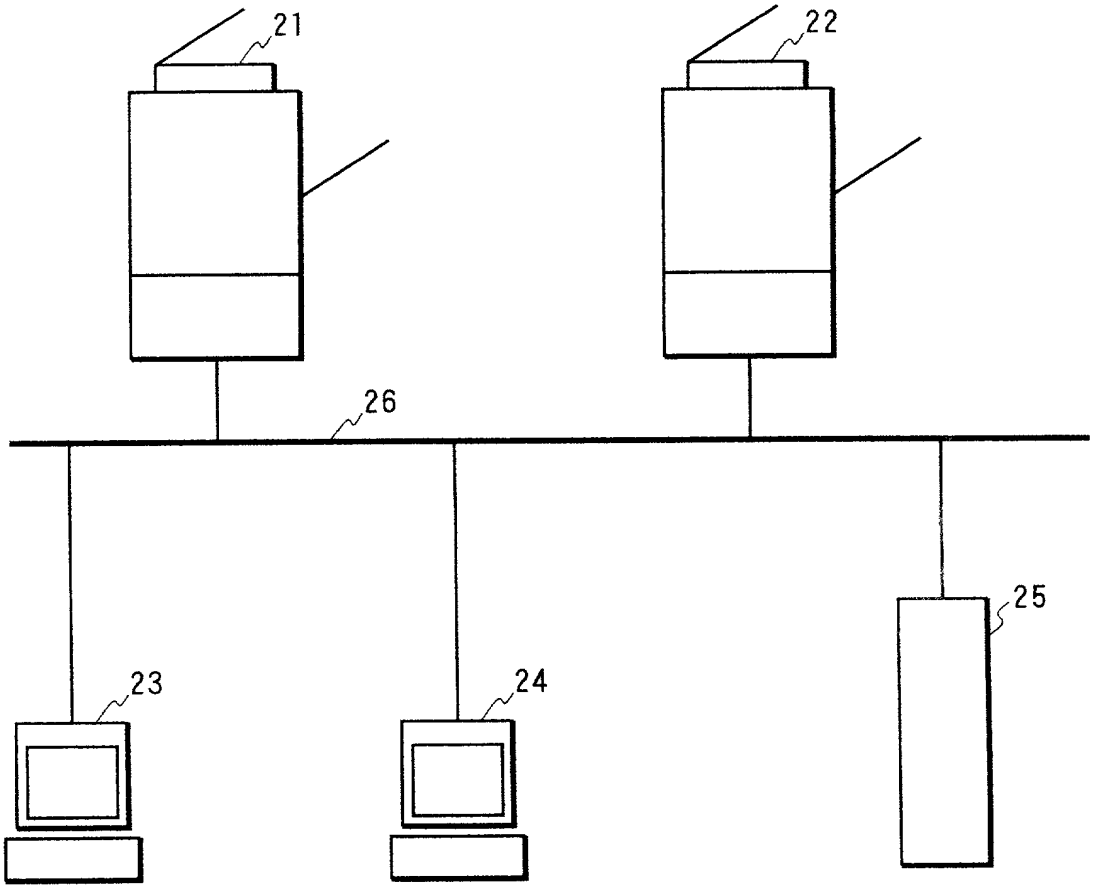


FIG. 3

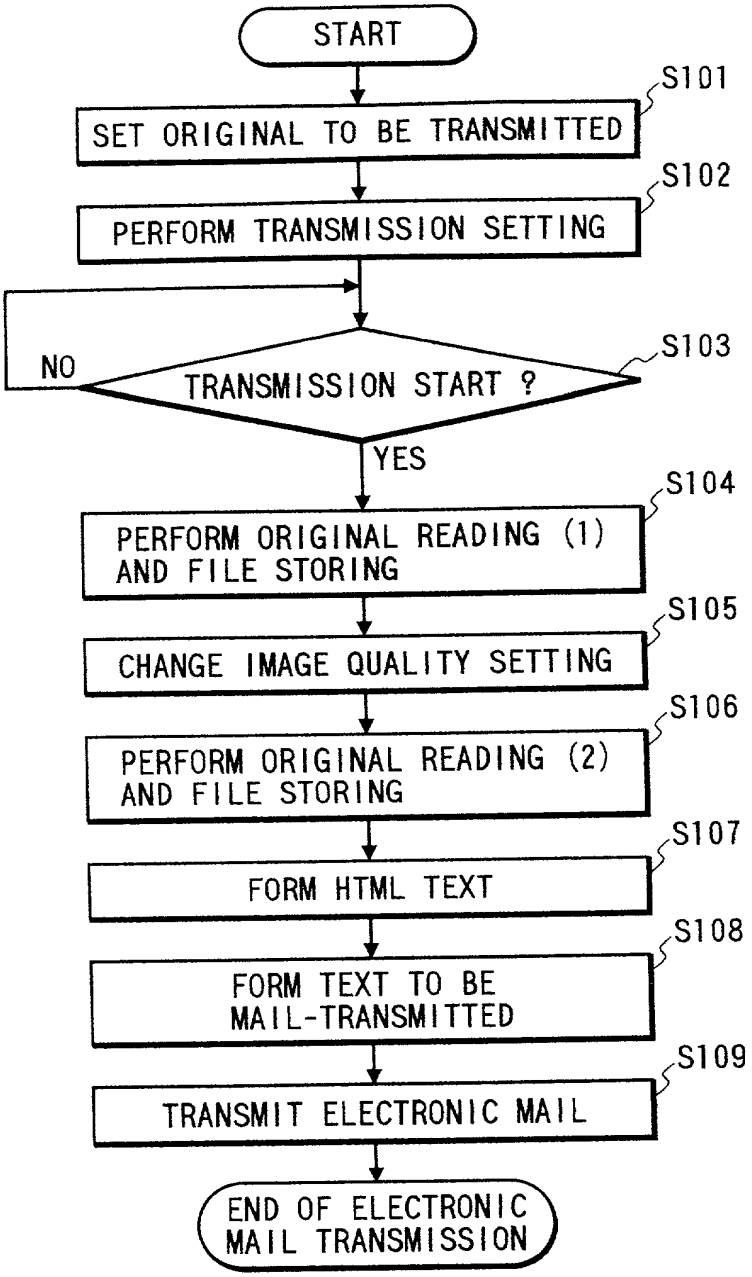

START
S101
SET ORIGINAL TO BE TRANSMITTED
S102
PERFORM TRANSMISSION SETTING
NO
S103
TRANSMISSION START ?
YES
S104
PERFORM ORIGINAL READING (1) AND FILE STORING
S105
CHANGE IMAGE QUALITY SETTING
S106
PERFORM ORIGINAL READING (2) AND FILE STORING
S107
FORM HTML TEXT
S108
FORM TEXT TO BE MAIL-TRANSMITTED
S109
TRANSMIT ELECTRONIC MAIL
END OF ELECTRONIC MAIL TRANSMISSION

FIG. 4

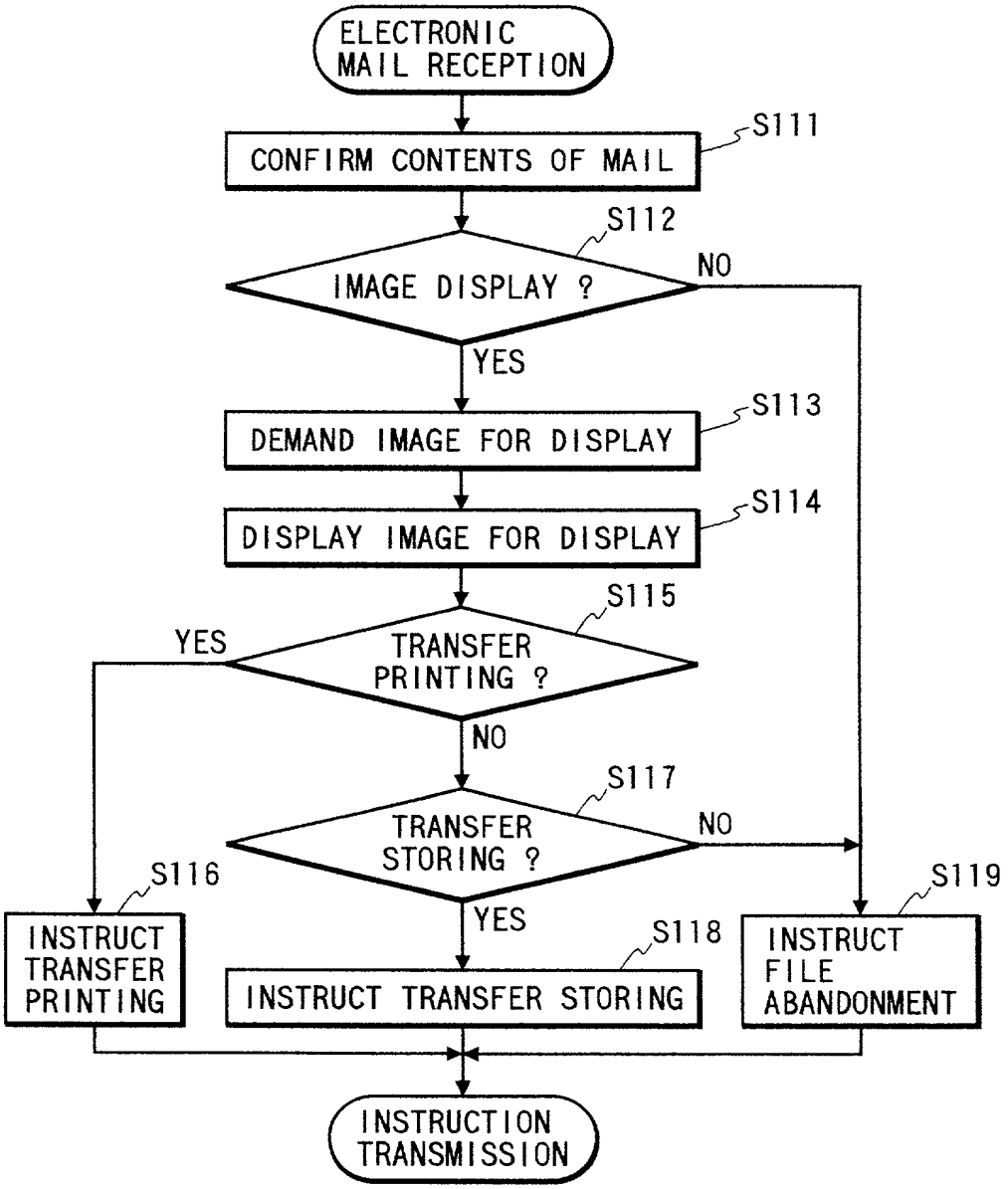
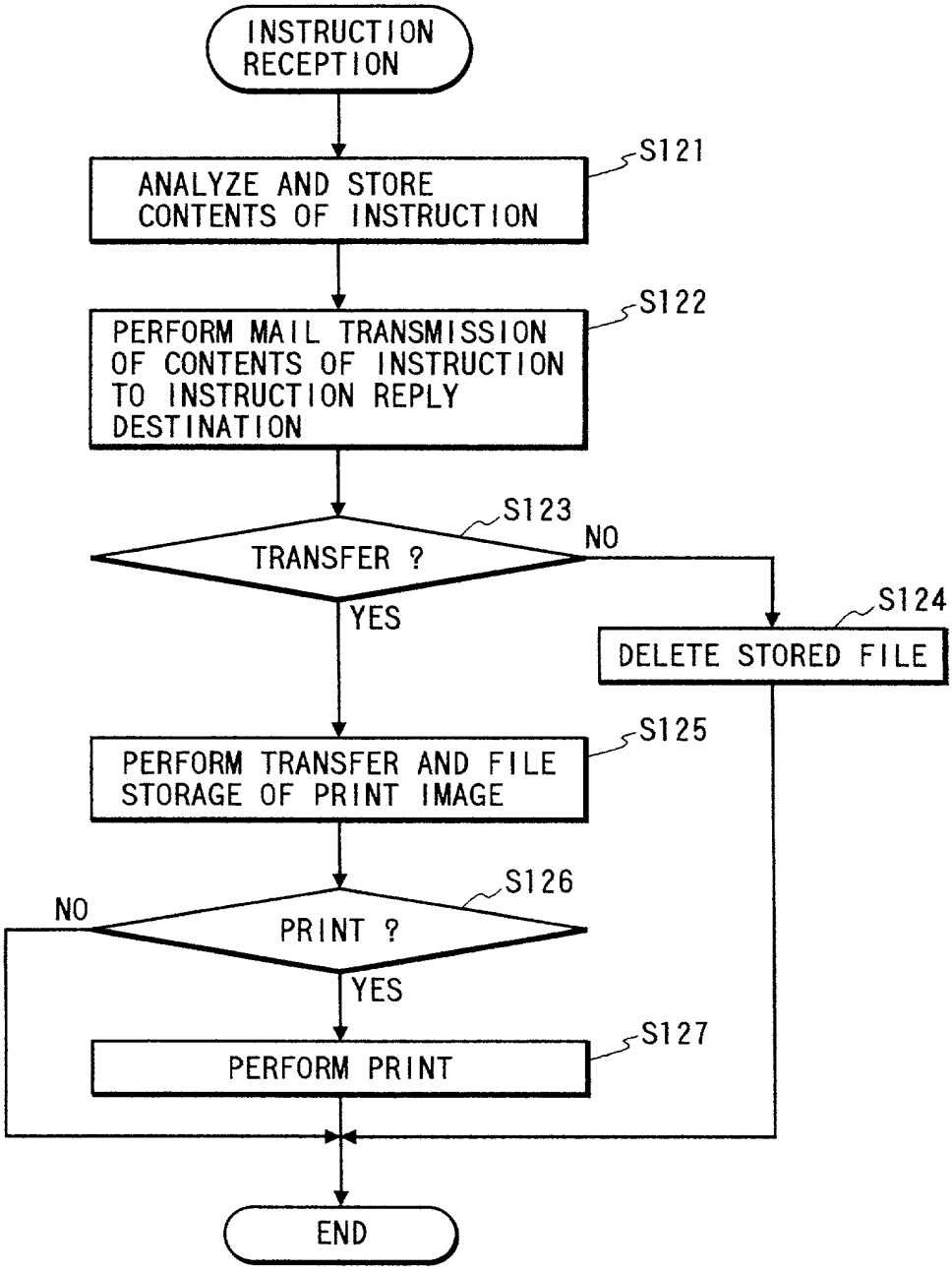

ELECTRONIC MAIL RECEPTION
CONFIRM CONTENTS OF MAIL
S111
IMAGE DISPLAY ?
S112
NO
YES
DEMAND IMAGE FOR DISPLAY
S113
DISPLAY IMAGE FOR DISPLAY
S114
TRANSFER PRINTING ?
S115
YES
NO
TRANSFER STORING ?
S117
NO
YES
INSTRUCT TRANSFER PRINTING
S116
INSTRUCT TRANSFER STORING
S118
INSTRUCT FILE ABANDONMENT
S119
INSTRUCTION TRANSMISSION

FIG. 5


INSTRUCTION RECEPTION
ANALYZE AND STORE CONTENTS OF INSTRUCTION
S121
PERFORM MAIL TRANSMISSION OF CONTENTS OF INSTRUCTION TO INSTRUCTION REPLY DESTINATION
S122
TRANSFER ?
S123
NO
YES
DELETE STORED FILE
S124
PERFORM TRANSFER AND FILE STORAGE OF PRINT IMAGE
S125
PRINT ?
S126
NO
YES
PERFORM PRINT
S127
END

COPY

Docket No. _____

COMBINED DECLARATION AND POWER OF ATTORNEY FOR
ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,
DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DATA COMMUNICATION APPARATUS AND METHOD

the specification of which

a. [x] is attached hereto

b. [ ] was filed on _____ as application Serial No. _____ and was amended on _____. (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

c. [ ] was described and claimed in International Application No. _____ filed on _____ and as amended on _____. (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby specify the following as the correspondence address to which all communications about this application are to be directed:

SEND CORRESPONDENCE TO: MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, N.Y. 10154

DIRECT TELEPHONE CALLS TO: Michael M. Murray
(212) 758-4800

[x] I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or under § 365(b) of any foreign application(s) for patent or inventor's certificate or under § 365(a) of any PCT international application(s) designating at least one country other than the U.S. listed below and also have identified below such foreign application(s) for patent or inventor's certificate or such PCT international application(s) filed by me on the same subject matter having a filing date within twelve (12) months before that of the application on which priority is claimed:

[ ] The attached 35 U.S.C. § 119 claim for priority for the application(s) listed below forms a part of this declaration.

Docket No. _____

Country/PCT	Application Number	Date of filing (day, month, yr)	Date of issue (day, month, yr)	Priority Claimed
JAPAN	9-035129	19 February 1997		[x] YES [ ] NO
				[ ] YES [ ] NO
				[ ] YES [ ] NO

[ ] I hereby claim the benefit under 35 U.S.C. § 119(e) of any U.S. provisional application(s) listed below.

Provisional Application No.	Date of filing (day, month, yr)

ADDITIONAL STATEMENTS FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART OR PCT INTERNATIONAL APPLICATION(S DESIGNATING THE U.S.)

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) or under § 365(c) of any PCT international application(s) designating the U.S. listed below.

US/PCT Application Serial No.	Filing Date,	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)
US/PCT Application Serial No.	Filing Date,	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)

[ ] In this continuation-in-part application, insofar as the subject matter of any of the claims of this application is not disclosed in the above listed prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or Imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys and/or agents with full power of substitution and revocation, to prosecute this application, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith: John A. Diaz (Reg. No. 19,550), John C. Vassil (Reg. No. 19,098), Alfred P. Ewert (Reg. No. 19,887), David H. Pfeffer, P.C. (Reg. No. 19,825), Harry C. Marcus (Reg. No. 22,390), Robert E. Paulson (Reg. No. 21,046), Stephen R. Smith (Reg. No. 22,615), Kurt E. Richter (Reg. No. 24,052), J. Robert Dailey (Reg. No. 27,434), Eugene Moroz (Reg. No. 25,237), John F. Sweeney (Reg. No. 27,471), Arnold I. Rady (Reg. No. 26,601), Christopher A. Hughes (Reg. No. 26,914), William S. Feiler (Reg. No. 26,728),

Docket No. _____

Joseph A. Calvaruso (Reg. No. 28,287), James W. Gould (Reg. No. 28,859), Richard C. Komson (Reg. No. 27,913), Israel Blum (Reg. No. 26,710), Bartholomew Verdirame (Reg. No. 28,483), Maria C. H. Lin (Reg. No. 29,323), Joseph A. DeGirolamo (Reg. No. 28,595), Michael A. Nicodema (Reg. No. 33,199), Michael P. Dougherty (Reg. No. 32,730), Seth J. Atlas (Reg. No. 32,454), Andrew M. Riddles (Reg. No. 31,657), Bruce D. DeRenzi (Reg. No. 33,676), Michael M. Murray (Reg. No. 32,537) and Mark J. Abate (Reg. No. 32,527) of Morgan & Finnegan, L.L.P. whose address is: 345 Park Avenue, New York, New York 10154; and Edward A. Pennington (Reg. No. 32,588) of Morgan & Finnegan, L.L.P., whose address is: 1299 Pennsylvania Avenue, N.W., Suite 960, Washington, D.C. 20004.

[x] I hereby authorize the U.S. attorneys and/or agents named hereinabove to accept and follow instructions from _____ _____as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and/or agents and me. In the event of a change in the person(s) from whom instructions may be taken I will so notify the U.S. attorneys and/or agents named hereinabove.

Full name of sole or first inventor AKIHITO MOCHIZUKI

Inventor's signature* Akihito Mochizuki

Residence 9-36, Tsudanuma 7-chome, Narashino-shi, Chiba-ken, Japan date February 12, 1998

Citizenship Japan

Post Office Address c/o Canon Kabushiki Kaisha
30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo, Japan

Full name of second joint inventor, if any _____

Inventor's signature* _____ date

Residence _____

Citizenship _____

Post Office Address _____

[ ] ATTACHED IS ADDED PAGE TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR SIGNATURE BY THIRD AND SUBSEQUENT INVENTORS FORM.

* Before signing this declaration, each person signing must:

1. Review the declaration and verify the correctness of all information therein; and

2. Review the specification and the claims, including any amendments made to the claims.

After the declaration is signed, the specification and claims are not to be altered.

Docket No. _____

To the inventor(s):

The following are cited in or pertinent to the declaration attached to the accompanying application:

Title 37, Code of Federal Regulation, §1.56

Duty to disclose information material to patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

Title 35, U.S. Code § 101

Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Title 35 U.S. Code § 102

Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent,

(b) the invention was patented or described in a printed publication in this or foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other ...

Title 35, U.S. Code § 103

Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Title 35, U.S. Code § 112 (in part)

Specification

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Title 35, U.S. Code, § 119

Benefit of earlier filing date in foreign country; right of priority

An application for patent for an invention filed in this country by any person who has, or whose legal representatives or assigns have, previously regularly filed an application for a patent for the same invention in a foreign country which affords similar privileges in the case of applications filed in the United States or to citizens of the United States, shall have the same effect as the same application would have if filed in this

country on the date on which the application for patent for the same invention was first filed in such foreign country, if the application in this country is filed within twelve months from the earliest date on which such foreign application was filed; but no patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country more than one year prior to such filing.

Title 35, U.S. Code, § 120

Benefit or earlier filing date in the United States

An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States, or as provided by section 363 of this title, which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application.

Please read carefully before signing the Declaration attached to the accompanying Application.

If you have any questions, please contact Morgan & Finnegan, L.L.P.

FORM: COMB-DEC.NY
Rev. 1/22/98